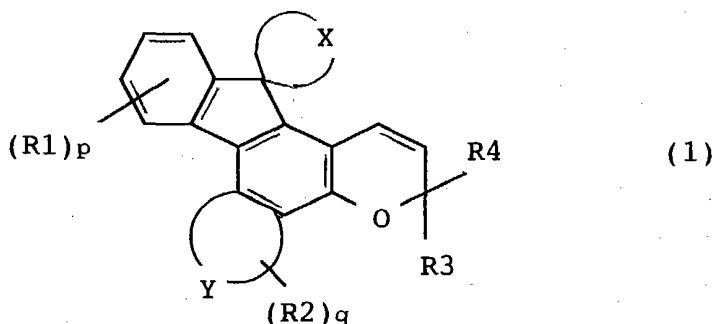
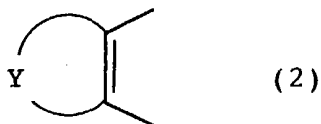


## (Claims)

1. A chromene compound represented by the following general formula (1),



wherein a group represented by the following formula (2),



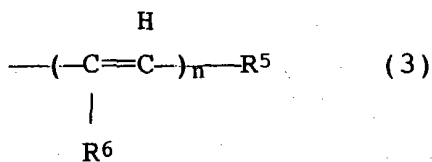
is an aromatic hydrocarbon group or an unsaturated heterocyclic group;

R<sup>1</sup> is a hydroxyl group, an alkyl group, a trifluoromethyl group, an alkoxy group, an alkoxy carbonyl group, a carboxyl group, an alkoxymethyl group, a hydroxymethyl group, an aralkoxy group, an amino group, a substituted amino group, a cyano group, a nitro group, a halogen atom, an aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted heterocyclic group having a nitrogen atom as a hetero atom and in which the nitrogen atom and an indene ring are coupled together, or a condensed heterocyclic group in which the heterocyclic group is condensed with an

aromatic hydrocarbon ring or an aromatic heterocyclic ring, and p is an integer of 0 to 3;

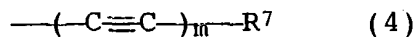
R<sup>2</sup> is a hydroxyl group, an alkyl group, a trifluoromethyl group, an alkoxy group, an alkoxy carbonyl group, a carboxyl group, an alkoxy methyl group, a hydroxymethyl group, an aralkoxy group, an amino group, a substituted amino group, a cyano group, a nitro group, a halogen atom, an aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted heterocyclic group having a nitrogen atom as a hetero atom and in which the nitrogen atom and a ring of the group represented by the above formula (2) are bonded together, or a condensed heterocyclic group in which the heterocyclic group is condensed with an aromatic hydrocarbon ring or an aromatic heterocyclic ring, and q is an integer of 0 to 3;

R<sup>3</sup> and R<sup>4</sup> are, independently from each other, a group represented by the following formula (3),



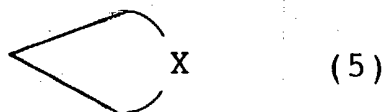
wherein R<sup>5</sup> is a substituted or unsubstituted aryl group, or a substituted or unsubstituted heteroaryl group, R<sup>6</sup> is a hydrogen atom, an alkyl group or a halogen atom, and n is an integer of 1 to 3,

a group represented by the following formula (4),

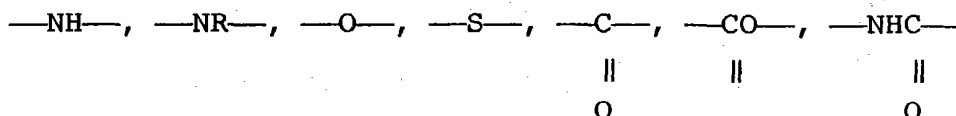


wherein  $R^7$  is a substituted or unsubstituted aryl group, or a substituted or unsubstituted heteroaryl group, and  $m$  is an integer of 1 to 3, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, or an alkyl group, or  $R^3$  and  $R^4$  together may constitute an aliphatic hydrocarbon ring or an aromatic hydrocarbon ring; and

a cyclic group spiro-bonded to a first position of an indene ring represented by the following formula (5),



is an aliphatic hydrocarbon cyclic group which is an unsubstituted monocyclic ring having 7 to 20 carbon atoms in the ring, an aliphatic hydrocarbon cyclic group which is a monocyclic ring having 4 to 20 carbon atoms in the ring and having at least one substituent selected from alkyl group, alkoxy group, amino group, substituted amino group, substituted or unsubstituted aralkyl group and substituted or unsubstituted aryl group, a crosslinked cyclic or spiro-cyclic aliphatic hydrocarbon cyclic group which may have at least one substituent selected from the group consisting of alkyl group, alkoxy group, amino group, substituted amino group, substituted or unsubstituted aralkyl group and substituted or unsubstituted aryl group, or a substituted or unsubstituted cyclic group having 4 to 20 carbon atoms in the ring, the cyclic group having at least any one of the following groups in a number of 1 or 2 or more (but not containing two oxy groups),



5            wherein R is an alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted aralkyl group, a carboxyl group or an alkoxycarbonyl group.

2. A chromene compound according to claim 1, wherein  
10 the molecules thereof have no polyalkyleneoxy group with a polymerizable group bonded at one terminal thereof.

3. A chromene compound according to claim 1 or 2,  
wherein, in said general formula (1), the cyclic group  
15 spiro-bonded to a first position of the indene ring represented by the above formula (5) is an aliphatic hydrocarbon cyclic group of an unsubstituted monocyclic ring having 7 to 15 carbon atoms in the ring, or an aliphatic hydrocarbon cyclic group of a monocyclic ring having 4 to 15 carbon atoms in the ring and having at  
20 least one substituent selected from the group consisting of alkyl group, alkoxy group, amino group, substituted amino group, substituted or unsubstituted aralkyl group and substituted or unsubstituted aryl group.

4. A chromene compound according to claim 1 or 2,  
25 wherein, in said general formula (1), the cyclic group spiro-bonded to a first position of the indene ring represented by the above formula (5) is an aliphatic hydrocarbon monocyclic group having 4 to 15 carbon atoms in the ring and having at least one substituent selected  
30 from the group consisting of alkyl group, alkoxy group, amino group, substituted amino group, substituted or unsubstituted aralkyl group and substituted or unsubstituted aryl group at the  $\beta$ -position of the spiro carbon.

35            5. A chromene compound according to claim 1 or 2,

wherein, in said general formula (1), the cyclic group spiro-bonded to a first position of the indene ring represented by the above formula (5) is a bicyclic group or a tricyclic group having 4 to 15 carbon atoms in the  
5 ring and having at least one substituent selected from the group consisting of alkyl group, alkoxy group, amino group, substituted amino group, substituted or unsubstituted aralkyl group and substituted or unsubstituted aryl group.

10 6. A chromene compound according to claim 1 or 2, wherein, in said general formula (1), the cyclic group spiro-bonded to the first position of the indene ring represented by the formula (5) is a cyclic group having 4  
15 to 15 carbon atoms in the substituted or unsubstituted ring, and having one or two of at least one kind of group selected from the group consisting of -NH- group, -NR- group (where R is an alkyl group, a substituted or unsubstituted aryl group, substituted or unsubstituted  
20 aralkyl group, a carboxyl group or an alkoxycarbonyl group), -S- group, -O- group, -C(=O)- group, -C(=O)O- group and -NHC(=O)- group (but not containing two oxy groups).

25 7. A chromene compound according to claim 6, wherein the cyclic group having 4 to 15 carbon atoms in the ring is a substituted or unsubstituted monocyclic group, or a substituted or unsubstituted crosslinked cyclic group.

8. A photochromic material containing the chromene compound of any one of claims 1 to 7.

30 9. A photochromic material containing an ultraviolet-ray stabilizer.

10. A photochromic optical material containing a photochromic material of claim 8 or 9.

11. A photochromic optical material obtained by dispersing the photochromic material of claim 8 or 9 in a  
35 high-molecular matrix.

12. A photochromic optical material according to claim 11, wherein the high-molecular matrix has a Rockwell hardness of 80 to 120.

13. A photochromic curable composition containing a  
5 polymerizable monomer and a photochromic material of claim 8 or 9.

14. A photochromic lens obtained by laminating a layer containing a photochromic material of claim 8 or 9 on at least one surface of the lens.

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